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Remarks

No new matter is added by the foregoing amendments.

Claims 1-20 are pending. Claims 3, 7-10, 13 and 17-20 were previously withdrawn from further consideration by the Examiner as being drawn to a non-elected invention and/or species. Reconsideration and allowance of all claims, as amended, are requested for the reasons discussed below.

Amendment to the Claims

Applicants' amendment of the claims clarifies that the claimed apparatus and method are used to distribute liquid to a packing (as opposed to trays or other devices) using a plate that is located above the packing. Support for these amendments appears in the specification at page 1, lines 1-7, page 2, lines 20-21, page 3, lines 13-14 and 18-21, and page 11, lines 1-3.

The amendments also make it clear that the internal baffle of the claimed invention has an upper edge and a lower edge opposite the upper edge, and that at least a portion of the lower edge is adjacent or touching the bottom of the channel. Support for this amendment appears in the figures, especially Figures 8 and 7B, and in the specification at page 12, lines 17-21, page 15, lines 8-10, and page 16, lines 11-15.

Amendment to the Specification

Applicants have amended the "Background of the Invention" section of the specification by eliminating the reference to "trays" in paragraphs [0002] and [0007]. The amended paragraphs are now consistent with the rest of the application which makes clear that Applicants' invention relates to an apparatus and a method for distributing a liquid from a liquid distributor to a packing (rather than trays) in an exchange column. See paragraph [0001] of the specification at page 1, lines 1-7.

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The 102 Rejection Based on Bruckert

The Examiner rejected claims 1, 2, 4, 6, 11, 12, 14, and 16 under § 102(b) as being anticipated by Bruckert (U.S. Pat. No. 3,410,540). Specifically, the Examiner based his rejection on Figure 5 of Bruckert. For the reasons set forth below, Applicants respectfully disagree.

Figure 5 of Bruckert shows a downcomer used in a vapor-liquid contacting tray wherein the downcomer serves to transfer liquid from an upper tray to a lower tray. Applicants' claimed invention is significantly different than the downcomer shown in Bruckert both structurally and in arrangement.¹

The corrugated "serpentine strip" shown in Figure 5 of Bruckert provides mechanical support for the downcomer walls, as discussed at column 14, lines 18-23:

If desired, the structural rigidity of the side walls of each downcomer means may be reinforced by bracing means, such as the serpentine strips shown in FIG. 5, which are designed and oriented to impose a minimum restriction to fluid flow in the vertical direction. (Emphasis added).

¹ Anticipation requires the disclosure in a single prior art reference of each element of the claim under consideration. It is not enough, however, that the reference discloses all the claimed elements in isolation. Rather, the prior art reference must disclose each element of the claimed invention "arranged as in the claim." *Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 221 USPQ 481, 485 (Fed. Cir. 1984) (citing *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 220 USPQ 193 (Fed. Cir. 1983)) (emphasis added). Thus, even if a prior art reference includes all the elements that are claimed, if the arrangement of the claimed elements is different from the arrangement of the prior art elements, anticipation will not be present. Further, anticipation will not be found when the prior art is lacking or missing a specific feature of the structure of the claimed invention. "Every element of the claimed invention must be literally present, arranged as in the claim." *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989) ("The identical invention must be shown in as complete detail as is contained in the... claim.") (emphasis added) See, the comment in MPEP § 2131.

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In contrast, Applicants' internal baffle is not a bracing means, nor does it impose a minimum restriction to fluid flow. Rather, Applicants' internal baffle, which has a lower edge adjacent or touching the bottom of the channel, has a significant effect (as intended) on the liquid flow in the horizontal direction. Specifically, the internal baffle significantly affects the cross-flow velocity of the liquid flowing above an aperture (orifice) in the bottom of a channel, thereby mitigating the effects of the cross-flow velocity on the downward direction of liquid flowing from the aperture in a vertical direction.

As shown in Figure 5 of Bruckert, the upper edge of the serpentine strip is at the top of the downcomer means 10, while the lower edge of the serpentine strip is not near or touching the outlet means 20. In contrast, in Applicants' claimed invention, the lower edge of the internal baffle is adjacent or touching the bottom of the channel. See amended independent claims 1 and 11.

Since Applicants' claimed invention includes at least one feature (an elongated internal baffle having a lower edge adjacent or touching the bottom of a channel in a plate located above a packing) that is not disclosed by Bruckert, withdrawal of the rejection based on Bruckert under § 102 is required. Even assuming, *arguendo*, that Bruckert discloses all of the elements of Applicants' invention, withdrawal of the § 102 rejections is required because Bruckert does not disclose each element of Applicants' claimed invention arranged as in amended independent claims 1 and 11.

For all of the foregoing reasons, withdrawal of the rejection under § 102 based on Figure 5 of Bruckert is requested.

The 102 Rejection Based on Bentham

The Examiner rejected claims 1, 2, 5, 11, 12, and 15 under § 102(b) as anticipated by Bentham (U.S. Pat. No. 4,627,941). Specifically, the Examiner based his rejection on Figures 1 and 2 of Bentham. For the reasons set forth below, Applicants respectfully disagree.

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Like Bruckert, Bentham also discloses an apparatus for improving the performance of a downcomer in mass transfer trays. Specifically, Bentham places an insert in the downcomer to affect the discharge of vapor out of the downcomer. However, the combination insert and downcomer in Bentham is significantly different than Applicants' claimed invention both structurally and in arrangement.²

Bentham does not disclose an apparatus for distributing a liquid to a packing in an exchange column having all of the elements in independent claim 1 and in dependent claims 2 and 5. Particularly, Bentham does not disclose a plate having at least one channel and an internal baffle disposed in the channel wherein at least a portion of the lower edge of the internal baffle is adjacent or touching the bottom of the channel.

Since Applicants' invention, as claimed in independent claim 1 and dependent claims 2 and 6, includes at least one feature (discussed above) that is not disclosed by Bentham, withdrawal of the rejection of claims 1, 2 and 5 is required.

Bentham also does not disclose a method for adjusting a flow direction of a stream of a liquid exiting an aperture in an elongated channel within a plate located above a packing in an exchange column, the method including the two steps set forth in amended independent claim 11 and dependent claims 12 and 15. In particular, Bentham does not disclose a method using an internal baffle placed inside the channel of the plate wherein at least a portion of the lower edge of the internal baffle is adjacent or touching the bottom of the channel.

Since Applicants' invention, as claimed in independent claim 11 and dependent claims 12 and 15, includes at least one feature (discussed above) that is not disclosed by Bentham, withdrawal of the rejection of claims 11, 12 and 15 is required.

² See footnote 1 regarding the requirement that the elements of the cited reference must be arranged as in the claim for there to be anticipation.

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In sum, since Applicants' invention includes at least one feature (previously discussed) that is not disclosed by the cited references, withdrawal of the rejections under § 102 is required. Even assuming, *arguendo*, that the cited references disclose all of the elements of Applicants' invention, withdrawal of the § 102 rejections is required because the references do not disclose each element of Applicants' claimed invention arranged as in the amended claims.

For all of the foregoing reasons, withdrawal of all of the rejections under § 102 is requested.


Conclusion

In view of the foregoing amendments and remarks, Applicants respectfully submit that the claims are now in condition for allowance. Further examination, and reconsideration and withdrawal of all outstanding rejections, is respectfully requested, and the Examiner is encouraged to issue a formal Notification of Allowance.

Respectfully submitted,

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Willard Jones, II
Registration No. 31,172Air Products and Chemicals, Inc.
7201 Hamilton Boulevard
Allentown, Pennsylvania 18195-1501
Telephone Number: (610) 481-4587
Telefax Number: (610) 481-7083

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